

#### ABSTRACT

This invention relates to a process for producing a complex carbohydrate, which comprises: selecting, as enzyme sources, a culture broth of a microorganism capable of producing a sugar nucleotide from a nucleotide precursor and a sugar, or a treated product of the culture broth, and a culture broth of a microorganism or animal cell capable of producing a complex carbohydrate from a sugar nucleotide and a complex carbohydrate precursor, or a treated product of the culture broth; carrying out an enzyme reaction in an aqueous medium containing the enzyme sources, the nucleotide precursor, the sugar and the complex carbohydrate precursor to form and accumulate the complex carbohydrate in the aqueous medium; and recovering the complex carbohydrate from the aqueous medium, and a process for producing a sugar nucleotide, which comprises selecting, as an enzyme source, a culture broth of a microorganism capable of producing a sugar nucleotide from a nucleotide precursor and a sugar, or a treated product of the culture broth; carrying out an enzyme reaction in an aqueous medium containing the enzyme source, the nucleotide precursor and the sugar to form and accumulate the sugar nucleotide in the aqueous medium; and recovering the sugar nucleotide from the aqueous medium.